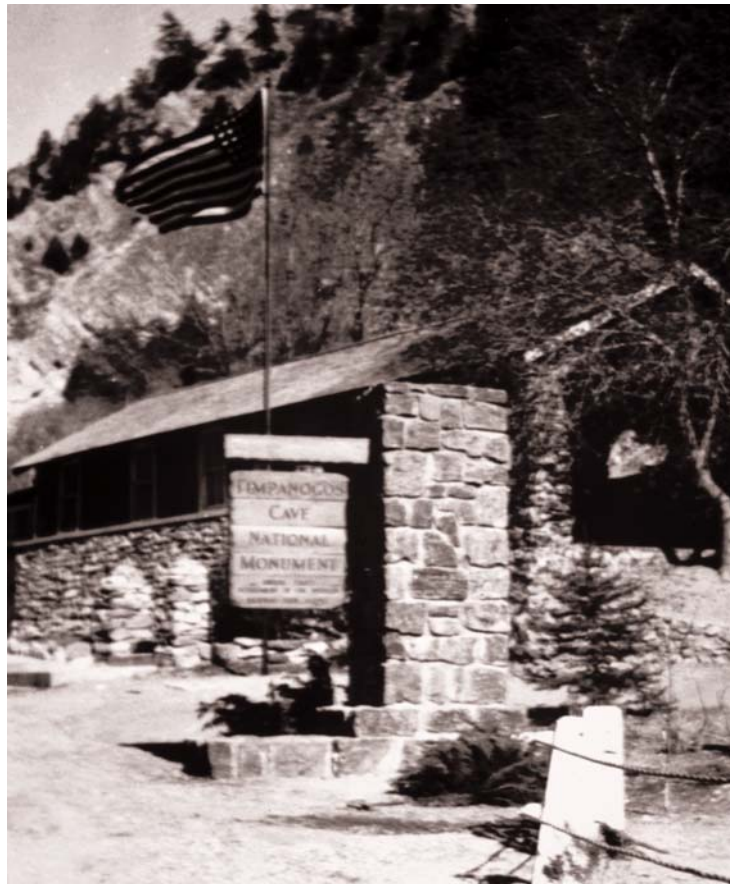


TIMPANOGOS CAVE

NATIONAL MONUMENT

SUPERINTENDENT'S ANNUAL NARRATIVE REPORT

Fiscal Year 2003
October 1, 2002 to September 30, 2003



National Park Service
Department of the Interior

TIMPANOGOS CAVE NATIONAL MONUMENT
SUPERINTENDENT'S ANNUAL NARRATIVE REPORT
FOR
FISCAL YEAR 2003

This report establishes the annual administrative history and documents the accomplishments of Timpanogos Cave National Monument, Utah, for Fiscal Year 2003. Questions or comments regarding this report should be directed to: Superintendent, Timpanogos Cave National Monument, R. R. 3, Box 200, American Fork, Utah 84003. (801) 756-5239.

Approved: _____
Kit T. Mullen, Superintendent
Timpanogos Cave National Monument

March 23, 2004
Date

General Park Management

Fiscal Year 2003 was a year of reduced operations and some long needed facility construction and rehabilitation. It was also a year of rotating managers. Although the financial ability of the monument to maintain operations continues to decline, the annual goals remained focused on maintaining high quality visitor services, safe visitor and employee activities, and protection and understanding of monument resources. Monument programs and visitor opportunities continue to grow in popularity. Visitor satisfaction remains very high regardless of a delayed seasonal opening and occasional closures for construction at the cave entrance, and extremely hot weather during the peak of the season making the hike to the cave very unpleasant.

Several things stand out in 2003 as important steps forward for the monument. A Settlement Agreement to decommission the American Fork Hydroelectric Project was signed by nine partners on February 6. It is under consideration by the Federal Energy Regulatory Commission. This was the culmination of five years work and negotiation. Contracts were made on several important projects. A.J.C. Architects, Inc. of Salt Lake City was contracted to do schematic design of a new interagency center. Edquist Davis Exhibits was contracted to do exhibit design for the facility and they are working closely with A.J.C. The US Forest Service is currently conducting a land exchange to acquire property in Highland City for the new facility. Another very important project that was contracted was the construction of a shelter at the cave entrance to protect waiting visitors from the hazard of falling rocks and from harsh weather. The contract included the rehabilitation of the Ranger Room at the cave entrance to provide larger, safer and more comfortable space for the interpretive rangers to work from in preparation to conduct cave tours.

Staffing

From January 11, 2003 through August 10, 2003, Timpanogos Cave Superintendent Kit Mullen was in a seven-month acting assignment as Superintendent of Big Thicket National Preserve headquartered in Beaumont, Texas. During her absence acting superintendents provided management leadership at Timpanogos Cave. From February 17 through May 1, Diane Chung, permanently duty stationed at Denali National Park and Preserve, Alaska was acting superintendent of the monument. Jim Boucher from Grand Canyon National Park followed her from May 17 through August 10. During the several weeks between the arrival and departure of these acting managers, Timpanogos Cave Chief Ranger Mike Gosse served as acting superintendent of the monument. The park staff and the superintendent are all grateful for the hard work and contribution of the three acting superintendents who guided the monument through much of 2003.

During the 2003 cave tour season the monument remained without a Chief of Interpretation. Although the position had been announced early in the fiscal year, a suitable candidate was not available from that applicant certification. The position was re-announced in May. Lee Werst from Carlsbad Caverns National Park was hired as the Chief of Interpretation and he arrived on duty September 21. Prior to Lee's arrival at the monument, Chief Ranger Mike Gosse picked up the duties of the Chief of Interpretation.

Community Relations

Community awareness and involvement continued as an important focus in 2003. The development growth rate in the gateway communities remains very high. With the population of Utah now exceeding 2.2 million people, there are an estimated 1.6 million people within an hour drive of the monument. This number is predicted to go to 2.7 million over the next twenty years. Opportunities for community involvement and support are many, and community relations are critical to the future of the monument. The superintendent generally conducts community relations, but all employees are ambassadors for the monument through their work.

Efforts were very successful in getting human-interest stories on people and community-oriented events at Timpanogos Cave in the media every several months. This was in addition to frequent press releases for events and ongoing programs. This has successfully kept the monument in the public eye with highly favorable public response.

Several schools were involved in community events. Special needs students from the Dan Peterson School were again invited to trim the holiday tree (with decorations they made) in the monument visitor center. Local High School students and senior citizens worked together in the Senior Ranger Corps and BATS program to assist with interpretive cave tours and resource management projects. Other schools remain active in volunteer efforts that greatly benefit the monument.

Cooperative Activities/Partnerships

Through a formal agreement with the Uinta National Forest, Utah County, and Utah Department of Transportation, under the U.S. Forest Service authority for Recreation Fee Demonstration, Timpanogos Cave National Monument has been able to improve visitor services and resource management and protection. Timpanogos Cave remained a key player in a highly successful interagency recreation fee demonstration project that is managed to support the American Fork Canyon-Alpine Loop Corridor recreation fee area. This was the seventh year of the project. The project would not work if it were not for the strong partnership between all parties, especially the federal agencies. Under U.S. Forest Service authority, 100% of the revenue is retained and spent within the management area. With about 1.2 million visitors per year to the canyon, over the past seven years nearly two million dollars have been collected. Revenue is spent on projects selected from recommendations made by all partners and the public. Final prioritization is done by both federal agencies. The Recreation Fee Demonstration program is authorized through December 31, 2005.

The program collected approximately \$409,000 in 2003. Of this, approximately \$116,800 came to the monument for monument programs (approximately \$41,000 for projects plus the cost of program operation). This remains the only formally established partnership in which the monument participates.

Informal partnerships in the form of cooperative activities and supportive relationships continued to be an important part of monument operations. Working collaboratively with friends, supporters, and special interest groups has been key to achieve the monument's mission. Support from several conservation organizations, including the National Parks and Conservation Association, and Trout Unlimited was critical to progressing with the Federal Energy Regulatory Commission relicensing of a hydroelectric project that passes through the monument. Together with the Forest Service and PacifiCorp, the monument worked to successful resolution on the project. A settlement agreement was signed February 6, 2003 by nine partner agencies and

organizations to decommission the project. Continued cooperation on this project has led to discussions on the re-establishment of Bonneville Cutthroat Trout after the restoration work on the American Fork River is complete.

In addition to the formal agreement with the Uinta National Forest to manage the partnership Recreation Fee Demonstration Program, Timpanogos Cave works on a frequent basis with the forest to achieve mutual goals. Tools and equipment are often shared, as well as personnel. The Uinta NF has been very generous and helpful in providing archeologists to assist the monument in required site investigations prior to project work being undertaken. The Uinta NF has also supported the monument's fire and GIS programs.

The best example of the very close partnership between the monument and the Uinta NF is the progress on construction of a new center to house administrative offices for the monument and the Pleasant Grove District Ranger office, and a new visitor center for both agencies. This structure will be built within the city limits of Highland, a gateway community to NPS and FS lands. The partnership and support from the city government is very strong. With legal authority granted in law December 2002 the schematic building design and the exhibit design were contracted out. Both agencies are working closely with the contractors on the products. The city and the public will be consulted closely when design alternatives are developed.

In 2003, relationships with three local universities contributed greatly to the advancement of the resource management program through projects that added significantly to the monument's information base. The collaborative nature and success of these relationships has staged the monument for greater resource management achievements.

Relationships with other national park units are very important to continued success of the monument. Timpanogos Cave receives fire management support from Zion National Park, concession management support from Dinosaur National Monument, and contracting services from Grand Teton National Park. Timpanogos Cave also provided other parks with administrative assistance, fee management assistance, and special event control.

Recreation Fee Demonstration

Under the Recreation Fee Demonstration Program, Timpanogos Cave retains 80% of the revenue collected for cave tours. Legislation extended the program through the end of calendar year 2005. The National Park Service has established a service-wide goal of increasing revenue from user fees by 32%. At current prices, an increase of 32% is not a workable goal at Timpanogos Cave. The only means to increase the revenue is through the sale of more cave tours or an increase in prices. Cave tours are already at the limit of what can be provided during a day and throughout a season. Increasing the number of tours or people on tours has resource impact potential and is not under consideration. Authorization was received to raise cave tour prices for adults and juniors by one dollar each. Public information for implementation of the price increase is being planned.

In 2003 the cost of collection was \$119,626. Total revenue collected in 2003 was \$353,900, a decrease of \$15,100 or 4% from 2002 and \$10,100 below the annual goal of \$364,000. Carry-over funds from 2002 were about \$21,000 giving a total available fee revenue of \$375,000. The reduction in annual revenue was due to several factors. During May and most of June construction was underway at the entrance to the cave for rehabilitation of the Ranger Room and construction of the entrance shelter. This required periodic closures for visitor safety during construction and while construction materials were transported up the cave trail and by

helicopter. The closures reduced the number of cave tours available and thus fee revenue. The closures also reduced opportunities for education fee waivers during the highest school visitation month, May. Additional influences on visitation were exceptionally hot weather (the second hottest on record) and a slow economy.

Through the school fee waiver program 3,921 students and teachers enjoyed the monument on educational visits. This is equivalent to approximately \$23,000 that Timpanogos Cave National Monument gave to local education institutions.

Planning

Performance management planning continued to be a significant focus for the monument management team. Performance management planning, tracking and reporting has been used with great success. Programs and projects described in Annual Performance Plans have been followed resulting in a very high percentage of annual goals being achieved if not exceeded. Having clear understanding and documentation of management direction has assisted in programming work in all monument divisions. Performance management goals have been incorporated into the performance standards of all permanent employees and are used to evaluate success in the discharge of duties. Clear goals and work plans are also directing the successful collection of high quality data. Good performance management planning has provided the direction needed to so successfully compete for funding that is critical to the resource management program. Clear performance goals were especially helpful during 2003 when the superintendent was away on an acting assignment for seven months.

Work was begun on two important resource plans an integrated pest management plan, and a vegetation management plan. A museum housekeeping plan was completed. Work was begun with PacifiCorp/Utah Power on planning and designing a new delivery line for electrical power to the caves. The schematic design work for the new interagency center is a critical step in the implementation of the 1993 General Management Plan. All actions described in the GMP relating to facilities are dependant upon the development of a new administrative and visitor facility.

Lands

There have been no land ownership or acquisition issues involving the monument's 250 acres. The monument is actively supporting the USDA Forest Service in the acquisition by land exchange of 37.5 acres in Highland City for the location of the Timpanogos Interagency Center as provided for in P.L. 107-329, the Timpanogos Interagency Land Exchange Act of 2001.

Administration

Budget and Funding

Timpanogos Cave National Monument operates on combined fund sources of mainly annual appropriated budget, user fee revenue, special project funding, grants, donations, concession franchise fee, employee housing rental, and occasional line-item construction appropriations. The majority of these fund sources have been static or seen minimal increases, some have declined, over the past three years. As a whole the financial ability to operate the monument has been in decline. In 2003 this resulted in hiring fewer seasonal employees and some reduction in services.

The 2003 enacted budget for Timpanogos Cave was \$659,000. The adjusted base budget was \$637,300. In mid-season, an additional assessment for the NPS Microsoft contract was made in the amount of \$6,427, putting the adjusted base budget down to \$630,873.

An additional \$21,000 was received in 2003 to upgrade computer servers and to expand the computer network for headquarters, and resource management and maintenance.

Special project funds were received for the following projects:

Restore Natural Cave Drainage	\$41,000
Assess Water Quality and Air Flow Mass	\$20,000
Develop a Comprehensive IPM Plan	\$10,000
Install Bat Gates	\$6,400
Install Cave Handrails	\$15,000
Prepare an Administrative History	\$35,000
Improve Volunteer Trail Patrol Response	\$2,500
Senior Ranger – BATS Grant	\$6,228

Recreational Fee Demonstration 80% projects and expenditures were as follows:

Provide Interpretive Cave Tours	\$131,719
Maintain Cave Trail	\$32,258
Repair Rock Walls	\$28,167
Cave Exit Restroom	\$8,807
Cave Environmental Monitoring	\$15,351
Cost of Fee Collection	\$119,626

Timpanogos Cave National Monument has two employee houses. During 2003, both units were occupied by monument employees and maintained in good condition. Routine maintenance and repairs are done on the houses to keep them in good condition. The roofs of both houses were repaired. Both units also received new carpet and interior painting. The housing account, revenue accrued from house rental, fully cover all repair and maintenance costs.

Quarters income for 2003 was \$12,234. Quarters carryover from 2002 was \$18,352. Funds expended for quarters maintenance was \$11,806.

Personnel

Permanent full-time staff for most of 2003 was nine until the Chief of Interpretation was hired near the end of the fiscal year at which time all ten permanent full-time positions were filled. Of those ten positions one is subject to furlough and one is a four-year term position that will end in 2004. Seasonal staff in all Divisions totaled 47, including one STEP position. Of those 30 were women, 65% of the seasonal workforce. Through cooperation with area universities, colleges, and organizations, the monument looks for opportunities to recruit women and minorities into the seasonal workforce. However, during 2003 the monument had no minority seasonal employees. During 2003, the monument had 57 paid employees. In addition 192 volunteers assisted monument operations.

It is noteworthy that the cost of the ten permanent full-time employees plus fixed costs such as utilities is well over 90 percent of the appropriated base budget for the monument.

In 2003 there was one OWCP claim filed at Timpanogos Cave National Monument. The claim was for an injured knee. The injured seasonal worker took two days of sick leave and was then terminated as scheduled at the end of the season.

Information Management

The monument does not have an information technology specialist. All computer and IT support is done by collateral duty primarily by Administrative Clerk Jennifer Yates, and with support from regional IT specialists. In 2003 \$21,000 was provided through special emphasis program funding to upgrade very outdated computer servers and to expand the computer network. Monument headquarters received a new server and network equipment. The resource management and the maintenance offices received a new server and desperately needed networking equipment to allow them access to NPS and DOI IT systems.

Property

No noteworthy property acquisitions or disposals were made in 2003. All accountable property was checked and location verified as annually required.

Training

Monument staff attended the following training and conferences.

- IMR General Management Conference
- FMSS Training
- Chief Rangers Conference
- Contracting Warrant Maintenance
- Senior Ranger Workshop
- Panel Member for NPF Senior Ranger Program
- Facility Condition Assessment Survey Training
- Leave No Trace Annual Regional Coordinators Conference
- Non-Federal Oil and Gas Management Training
- Colorado Plateau Cluster Meeting
- Cave Ecosystem Workshop
- Law Enforcement Refresher
- National Speleological Society Convention
- Fire Fighting training
- Grant Writing Workshop
- Superintendent's Leadership Round Table Annual Meeting
- PAST Program Training and Mentoring
- Seasonal Interpretation Training
- Seasonal VUA Training

Ranger Activities

Law Enforcement, and Visitor Protection and Safety

The U.S. Government has proprietary jurisdiction at Timpanogos Cave. The monument's single commissioned officer, the Chief Ranger, works closely with the Utah County Sheriff's Department, the USDA Forest Service, and gateway community officers on law enforcement, emergency medical services, and fire prevention and response issues. The Chief Ranger also

enforces NPS regulations within the boundaries of the monument. In 2003 there were only minor incidents of unsafe behavior and resource impacts that required warnings. No citations were issued.

The National Park Service established this service-wide goal to assure visitor safety. From 1999 through 2002 the monument exceeded this goal with no serious visitor accidents. This continued in 2003. Visitor safety remains a high priority for the monument. Many things effect visitor safety and security. This goal focuses on maintaining park facilities, such as the cave trail and reducing rock fall and other hazards. Installing hand railings inside the cave, and maintaining safe drinking water and waste water systems are an important part of assuring visitor safety. Continuing safety messages to visitors who purchase cave tour tickets, increasing trail patrols and providing CPR/First Aid training to all employees are all part of the efforts to achieve this goal.

There were no visitor accidents in 2003 that required a hospital stay or significant medical costs. All visitor health and safety incidents were minor and handled very successfully by trained monument staff. There were five medical incidents in which visitors required assistance down the cave trail. These were for problems such as heart stress, heat related problems, shortness of breath, or a sprained ankle.

During 2003, medical supplies were well-stocked and new equipment purchased. The monument now has two AED units. A part time EMT was hired to do trail patrol during the peak season, and daily trail patrols by staff and volunteers provided significant assistance to visitors, especially during what proved to be one of the hottest summers on record. Special attention was paid to avoiding interactions between visitors and wildlife because 2003 was again a year of high rattlesnake occurrence on the cave trail. At times four or five rattlesnakes would need to be relocated from the trail in a single day. This continued for most of the season, creating an unusual public safety issue. Through signage, safety messages, and good staff work, serious interaction between visitors and rattlesnakes was completely prevented.

During 2003 one of the most significant visitor safety projects ever undertaken in the monument was constructed. Digital terrain modeling conducted in 2000 and completed in 2001 demonstrated that the waiting area at the entrance of Hansen Cave was the second highest risk area for rockfall on the cave trail. The rock trap built over 20 years ago protects the highest hazard area along the trail. After nearly three years of design consideration and development, an entrance shelter was constructed in 2003 under contract and managed on site by the monument Chief of Maintenance Chris Miller. Details are provided in the Maintenance section of this report.

Public Use

Timpanogos Cave National Monument is located adjacent to the population center of Utah, thirty miles from downtown Salt Lake City and fifteen miles from Provo. Nearly two million people live within a one and one-half hour drive of the monument. The monument is in American Fork Canyon, which receives 1.2 million visitors annually. Visitors come to Timpanogos Cave primarily for cave tours, but also enjoy hiking the cave trail, picnicking, wildlife viewing and fishing in the American Fork River. Interpretive evening programs and Jr. Ranger programs draw additional visitors. Annual visitation for 2003 was 106,091, and participation in programs was as follows.

- 6,316 Cave tours were available throughout the season with 66,928 people touring the cave. Due to sold out tours, 1,082 had to be turned away from touring the cave.
- 47 Evening programs were presented with 1,124 visitors attending
- The Junior Ranger program remained very popular. A total of 19 Jr. Ranger programs were offered and over 600 children attended, of which about 477 completed the program and received certificates and badges.

Based on formal survey information gathered during July 2003, 97% of visitors to Timpanogos Cave National Monument were satisfied with the overall quality of park facilities, services and recreational opportunities. There was a 19% response rate on the survey with the return of 76 cards. This was the fifth year of visitor surveys. During that time Timpanogos Cave National Monument has ranged from 97% to 100% visitor satisfaction. The survey accuracy is a 6% range. Three percent is not a significant variance. During 2003 the use of informal comment cards filled out by visitors continued to be frequent. The comments were overwhelmingly positive about services and staff. Some visitors made suggestions for changes or additions in facilities that reinforce projects the monument is already working on.

In 2003 the "Timpanogos Hiking Club" was established. Local citizens from nearby communities use the 1.5 mile steep trail to the caves for the purpose of exercise and fitness. The trail provides a safe and enjoyable environment with breathtaking panoramic views of the valley below. Hikers logged their 3-mile round trip hike at the visitor center. Not only did this become a popular new fitness program, but also the hikers are useful in monitoring the trail and report any problems that may need assistance from park staff. At the end of our six-month season 75 hikers participated in the fitness program and they hiked over 3,450 miles! One hiker alone accounted for 258 miles!

Concessions

The Timpanogos Cave National Monument concession operation managed by Carl and Betsy Wagner provides a food and beverage service combined with a small gift shop. During the 2003 season this operation continued to perform exceptionally well with quality food and souvenir products being sold. The Wagners are up to date on all compliance documents (financial reports, franchise fees, insurance reports, food handlers training, etc.), and received perfect scores during the biannual health and safety inspections conducted by the Intermountain Support Office, Denver. Franchise fees the concessioner paid to the National Park Service for 2003 totaled \$2,244, of which 80% (\$1,796) is available to the monument for improvements. . The Wagners contract was extended through the 2004 calendar year due to the passage of the 1998 National Parks Concessions Management Improvement Act.

Cooperating Association

Western National Parks Association (WNPA) is the cooperating association for Timpanogos Cave National Monument. Through sales items such as books and posters, WNPA generates revenue, a portion of which is set in an account for use by the monument to promote interpretation and education at Timpanogos Cave. Although the cooperating association contribution is tracked in dollars, the contribution of the association is far greater and truly about visitor service and resource protection.

The WNPA sales revenue for 2003 was \$16,353. Of this the monument receives \$2,000 in an Interpretive Support Account. WNPA funded printing for three publications: Jr. Ranger booklets, Nature trail guides, and Planning your Visit brochures, plus funded the acquisition of Anabat

detectors for a value of \$2,500. Seasonal staffing was funded at \$2,880. The total in-kind donation for 2003 was \$8,864.

Cash Donations and Grants

Private sector support for the National Park Service has a long and proud history. These generous donations help the agency achieve many priority projects and programs. At Timpanogos Cave National Monument cash donations are received through donation boxes in the visitor center and at the cave exit. Cash donations for 2003 totaled \$1,556.

Timpanogos Cave was one of twelve national park units that received a grant from United Parcel Post through the National Park Foundation to initiate a Senior Ranger program. The grant was for \$15,000. The 2003 portion of that grant was \$5,132.

Volunteers In Parks

Volunteers provide diverse assistance to National Parks, from maintenance and interpretation to administration and collection management. The National Park Service Volunteers in Parks (VIP) program, authorized in 1970, allows the National Park Service to accept and use voluntary help in ways mutually beneficial to the parks and the volunteers. Government downsizing and flat budgets have increased the need for volunteers in national parks. Timpanogos Cave would not have the level of visitor service and resource protection currently enjoyed without the help of volunteers. Care of monument resources and visitors is what volunteer hours truly demonstrate.

The monument utilized 192 volunteers in 2003 who donated 4,229 hours. Volunteers at Timpanogos Cave have been very beneficial in helping complete resource management and maintenance projects and providing exceptional visitor service. Volunteer projects completed included exotic vegetation removal, planting of native plants, visitor center staffing, cave tour assistance, cave trail patrol, slide scanning, trash pick-up, picnic area cleanup and production of park publications and news letters.

Interpretation

The Division of Interpretation and Education continues to be staffed by one permanent division chief, a position that was vacant for nearly the entire year. All other interpretive staff are temporary/seasonal appointments. Although interpretation is the largest division during the summer season, with about 24 seasonal employees, financial constraints prevent the development of a comprehensive year-round program. The public has demonstrated support for programs and activities at the monument, and the public desire for more programs and services is growing. For 81 years cave tours have been the primary visitor service at Timpanogos Cave. Results of the last census show the population of Utah to be over 2.2 million people. The majority of the population lives along the Wasatch front. An estimated 1.6 million people are within an hour drive of the monument, and the geographic population center of Utah is now at the mouth of American Fork Canyon – literally on the doorstep of Timpanogos Cave National Monument. Opportunities and venues for outreach programs are many, but a division of one full-time person is severely limited. Regardless, the interpretive program continues impressive development.

The Interpretive Development Program (IDP) continues to be a foundation for the monument's training and program development. This program is designed to help interpreters develop

superior professional skills and national level interpretation techniques. It is the best and most professional training program ever made available to National Park Service interpreters. During 2003, monument interpreters used the IDP with wonderful success. This was demonstrated by a steady flow of visitor comment cards praising the quality of the cave tours, interpretive services, and the friendly, helpful attitudes of all monument staff.

With fewer interpretive Rangers on staff than the previous year there was some reduction in informal interpretation in 2003. Rangers try to spend time on the cave trail and at the cave entrance area talking with visitors, answering questions and helping them understand and enjoy the monument beyond taking a cave tour.

The evening program series that is sponsored through the fee demonstration partnership with the Uinta National Forest continues to be popular. Programs were held every Friday, Saturday, and Monday evenings from Memorial Day through Labor Day. Approximately 1,124 people attended the 47 programs offered.

The Junior Ranger program, which targets children ages five through 13, continues to be popular. During 2003, a part-time seasonal interpretation ranger was on staff to present special Junior Ranger programs every Saturday. The programs are very popular and were given twice on some Saturdays. About 600 children participated in the programs with 477 children completing the program and earning certificates and badges.

Visitation by school groups under the fee waiver program remained strong. Information packages to the teachers were updated to assure compatibility with core curriculum. Fee waivers were given to 3,921 individuals and an additional 1,164 paying educational visitors took cave tours. Educational visits totaled 5,085 students and teachers, a reduction of 564. The estimated fee value waived for these visits is \$23,000.

An important outreach program the monument is supporting is Leave No Trace. In 2002, the monument's revenue and fee business specialist, Camille Price, became the Intermountain Region Leave No Trace Coordinator. She continued this role in 2003. This highly valuable outdoor education program teaches principles for using the land lightly to minimize impacts and preserve the resources for future generations. LNT programs are given locally and regionally.

Principal Interpretive Services work completed in 2003 included:

- Interpretive rangers were again the largest seasonal addition to the staff. These rangers provide interpretive cave tours and evening programs.
- Visitor Use Assistants are the next largest seasonal addition to the staff. They provide visitor information, assistance, tour sales, and operate the visitor center.
- All interpreters received three days of Interpretive Development training to learn national level techniques that helped interpreters provide well planned cave tours, and high quality, compelling evening programs.
- The Junior Ranger program remained very popular. A total of 19 Jr. Ranger programs were offered and over 600 children attended, of which about 477 completed the program and received certificates and badges.
- Interpretive waysides, the first ever designed for the cave trail, were installed.
- Outreach programs were increased this year with programs being conducted at Wasatch Mountain State Park, Jordanelle State Park, Granite Flat Campground, Clear Creek

Campground, Thanksgiving Point, the Utah Gem and Mineral Society, and the Boys and Girls Club of Salt Lake City. Several programs were presented to scout troops.

- Bulletin boards in high public use areas were maintained with information of interest, including fee demonstration project information, and subjects/displays were changed on a scheduled basis throughout the season.
- With the help of volunteers, Interpretive Rangers and VUA's increased trail patrols to assist visitors on their way to and from the caves.
- The monument web site was updated and put into a new format that allows staff to update on a regular basis and maintain with current information, and post press releases and special announcements.

Resource Management

Insufficient base funding continues to restrict the development of a permanent resource management program at Timpanogos Cave National Monument. The monument has no fulltime, permanent resource management staff. The resource management program functions almost entirely on annual project funding and recreation fee revenue. The uncertainty of such funding makes long-term resource management achievements questionable. However, the staff in recent years has become very successful at obtaining special funding and grants. This funding success has been key to completing important resource management projects. As a result, the resource management program had another highly successful year. Eight special projects were funded plus a project to install a computer network in the resource management office. A total of approximately \$170,000 in project funding was available. This funding was critical to achieving the following successful results.

Natural Resources

The delicate formations of the Timpanogos Cave system are very susceptible to human caused damage. Human induced changes, such as temperature, humidity, lint, and the addition of human oils and particles can irreversibly alter or stop the growth and development of cave formations. Soil and silt carried into the cave on shoes, lighting used to display cave formations, and infrastructure used to help people move through the caves all adversely affect the cave environment. To protect the cave environment and features from these impacts, cleaning away the debris and installing safeguards are necessary.

During 2003, the cave cleaning consisted of removing foreign debris such as mud, lint, hair, and algae from 2,200 ft² of the cave. A total of 9,100 sq. ft. of cave has been cleaned exceeding the three-year goal of a total area of 9,000 sq. ft. The cave was cleaned by hauling out debris with buckets, scrubbing hard flowstone formations, spraying formations with natural cave water using backpack sprayers, hand picking lint, and dabbing delicate formations with paint brushes. The cave cleaning also included routine cleaning of the tarps and mats used on the cave's catwalks, and replacing tarps with PVC sheeting for easier cleaning.

Funding was acquired for restoring cave drainages, monitoring microbial diversity, monitoring water quality, installing handrails, installing bat gates, and inventorying cave features. Work completed in 2003 included:

- A HOBO Weather Station was installed along the cave's exit trail to correlate the outside weather with the cave's environmental conditions. The weather station collects air

temperature, ground temperature, relative humidity, atmospheric pressure, wind speed, wind gust, and precipitation every 15 minutes.

- The monument's Resources Management Specialist presented talks on using ArcPad for cave surveying, and Disturbed Land Restoration in caves at the National Cave Management Symposium in Gainesville, Florida.
- Four Resource Management employees attended the NSS Convention and Workshop.
- SEPAS funding was returned in 2003 to complete the Bat Gates and Cave Handrail projects.
- Two bat gates were installed and the remaining bat gate will be installed in Spring 2004.
- The installation of new handrails was started. Four new stainless steel handrails were installed with additional handrails to be installed in 2004.
- Through SEPAS, funding was acquired for restoring cave drainages, monitoring microbial diversity, monitoring water quality, and inventorying cave features.
- The cave trail was retrofitted to the Chimes Chamber to enhance resource protection and increase visitor safety.
- A large rock was removed from the Big Room that was a common tripping hazard during cave tours.

Geology is the foundation of the most significant resource at Timpanogos Cave National Monument - the caves. The ancient sedimentation, rock bedding planes, uplift, folding, faulting, and hydrologic infiltration are all part of the formation of the Wasatch Mountains and the American Fork Canyon karst terrain in which the Timpanogos Cave system lies. Although some investigations into the origins and processes of the caves and karst terrain have been conducted, little has been definitive. The Timpanogos cave system is described as "alive" because dissolution, infiltration and deposition of calcite and other minerals are still decorating the caves. To protect the caves, more needs to be understood of the processes, watershed, fault lines, and weathering of the geology in the monument and surrounding areas. Work completed in 2003 included:

- The Timpanogos Groto continued work with the monument to enhance the knowledge and management of caves nationwide and is the reason for establishing this partnership. The grotto is an organization consisting of geologist, biologist, and other occupations that have an interest in preserving cave resources.
- A geological resource site bulletin was drafted and will be ready for printing for 2004.
- Several evening programs were conducted on the geology of the area.
- A power point presentation was developed on area geology to be used as an outreach tool.
- A geology presentation was conducted for the Utah Gem and Mineral Society.

Vital signs indicate key ecological processes that collectively indicate ecosystem health. They include key species, required habitat and fundamental processes. Identifying the vital signs of the monument resources will allow tracking of the status and trends of the resource condition.

Although resource inventories have been conducted in the past, they have been done in an opportunistic manner when time and funding permitted. Data has been recorded in many forms, frequently as incompatible data sets. Through this goal the monument will establish a program to inventory resources and establish a database to be used in monitoring resource changes and trends. The information will be used to make management decisions as well as provide information for use by interested parties. A geographic information system (GIS) has been established and is being used as a tool to record and process resource data. As part of a national effort for natural resource inventory and monitoring, the Northern Colorado Plateau

parks in the Intermountain Region developed a program to inventory the northern plateau parks, including Timpanogos Cave National Monument. Under the program, highly qualified professionals were contracted to conduct baseline inventories of vascular plants, birds, mammals, reptiles and amphibians.

During 2003, contract scientists completed surveys and reports on birds, small mammals, reptiles, and amphibians in Timpanogos Cave National Monument. Resource management staff worked with the contract specialists to determine which vascular plants, vertebrates, and cave biota would be monitored as monument vital sign resources. The surveys provided valuable knowledge about the natural resources of Timpanogos Cave National Monument. Through the results, vital signs have been established for the monument. Related work conducted in 2003 included:

- I&M surveys of birds, small mammals, reptiles, and amphibians were completed, reports written and copies returned to the park.
- Routine bat surveys throughout the caves and tunnels in the monument were conducted.
- Wildlife observations from monument staff were documented.
- Uinta National Forest continued taking quarterly water sampling of the American Fork River above and below the monument's boundary.
- Dr. Anjana Khatwa returned to ground-truth her hyperspectral remote sensing vegetation map for Timpanogos Cave NM.
- A cave macro-invertebrate survey was implemented through the I&M program and the monument is awaiting the results.
- Cave microbial samples were collected throughout the cave system and are currently being analyzed.

Water flow in the American Fork River has been diverted into a hydroelectric pipeline that routes water around the monument since 1907. The project has been in the relicensing process under Federal Energy Regulatory Commission authority for over five years. The last license expired October 31, 2000. The project facilities are outdated and the pipeline has broken frequently over the past ten years. In addition to the diversion having the ability to dewater the river through the entire reach in the monument, pipeline breaks wash rock, soil and debris into the river. The pipeline is above monument housing, picnic area and nature trail, which places visitors, employees and facilities at risk. The National Park Service and Department of the Interior worked for more than five years with partners to reach a settlement agreement for decommissioning the project and restoring the American Fork River. A Settlement Agreement for the Decommissioning of the American Fork Hydroelectric Project, FERC Project No. 696, was signed on February 6, 2003. Nine partners signed the document: Project owner PacifiCorp, National Park Service, USDA Forest Service, US Fish and Wildlife Service, Utah Division of Wildlife Resources, Utah Department of Transportation, Utah State Historic Preservation Officer, Utah Council of Trout Unlimited, and American Whitewater. The Settlement Agreement has been submitted to FERC and will be incorporated into the environmental assessment for the project as the preferred alternative. The EA should be released to the public in November 2003. The Settlement Agreement calls for shut down of the project by the end of August 2006, which will return complete flow to the river, and complete removal and restoration of the American Fork by December 31, 2007. In the meantime the project continues to operate on annual licenses with a minimum in-stream flow of 4 cfs. The completion of the American Fork Settlement Agreement is the first time such an agreement has been successfully negotiated on a FERC project in a national park unit and one of a very few successfully completed decommissioning agreements on a FERC project. Negotiations on the American Fork

Settlement Agreement set national policy for FERC and the Settlement Agreement document is being used as a template for other projects up for relicensing across the country. The Settlement Agreement achieves the strategic plan goal for the protection of surface water quality in the monument through restoration of full flow to the river, and far exceeds other resource protection goals through the restoration of the stream channel, removal of unsafe and harmful facilities, and preservation of historic resources.

Other water quality protection efforts have been focused on protection of cave hydrology. Cave cleaning efforts have been increased to include the cleaning of cave lakes affected by visitation. Improved silt, lint and debris entrapment has been installed and cave lake cleaning initiated.

The monument was also effective in working with the Uinta National during the 2003 Forest Land and Resource Management Plan Revision, to assure the upper cave watershed in Forest Service jurisdiction is adequately protected. This assures long-term protection of water quality that feeds the cave hydrology system.

Human activity in the riparian picnic areas and short cutting along mountain trails has resulted in soil compaction and erosion, and vegetation loss. Restoration of these areas while continuing to allow visitor use is problematic. Revegetation and seeding efforts continued during 2003. A significant amount of volunteer time was donated to this land restoration work. The nursery was maintained and plants from local seed sources were used for revegetation. Funding was received to control the spread of invasive plants, including revegetation of areas. A total of 5 acres is targeted for restoration by 2005. The three-year goal of 3 acres was exceeded with 4 acres restored. Work completed in 2003 included:

- 25 shrubs and trees and 27 lbs of a native grass seed mix were purchased and planted.
- Rabbit Brush, Sagebrush, Goldenrod, Hoary Aster, and Bluebunch Wheatgrass were successfully propagated.
- Seeds of native trees, shrubs, flowers, and grasses were collected to attempt to germinate native plants for the following year.
- Worked in a cooperative effort with the Uinta National Forest Shrub Lab to propagate gathered seeds.
- Funding for FY2002-2003 was acquired from CESU for controlling the spread of invasive plants and revegetation efforts.
- Funding was acquired through SEPAS for FY2003 to write a Vegetation Management Plan and an Integrated Pest Management (IPM) Plan.

Most of the invasive plants are established in disturbed areas. Some affected areas are in very steep terrain that requires careful techniques to avoid creating additional problems such as increased erosion due to the removal of well-rooted plants. Twelve invasive plant species have been identified, mapped and are being treated. Dalmatian Toadflax, Spotted Knapweed, and Hounds Tongue were rated the species of most concern. Photomonitoring continued. Additional funding has been acquired to continue pulling invasive plants and to write a Vegetation Management Plan and an Integrated Pest Management (IPM) Plan. Volunteers donated significant time to assisting in the pulling and removal of exotic plants. A total of 15 acres is targeted for removal of exotic plants by 2005. Both the 3-year goal of 13 acres and the 5-year strategic goal of 15 acres have been exceeded with 16 acres having been treated for exotic plants. Work completed in 2003 included:

- Treatment was continued on 3.3 acres of Dalmatian Toadflax by pulling.

- Treatment was continued on 0.14 acres of Spotted Knapweed by pulling.
- Treatment was continued on 1.0 acre of Hounds Tongue by pulling.
- Nonnative plants, such as Bouncingbet, Morning Glory, Yellow asyllum, Alfalfa, Yellow Sweetclover, were removed from the 0.5 acre meadow along the nature trail.
- The monument's list of exotic plants was updated.
- The distribution of invasive plants was mapped using GIS/GPS technologies.
- Funding was received through a CESU grant to remove exotic vegetation for FY2002 and FY2003.
- Funding was received in 2002 through SEPAS to write a Vegetation Management Plan, but the funding was pulled for other Regoinal priorities in 2003. An IPM Plan was drafted in FY 2003.

Cultural Resources

The monument has an historic district that includes the canyon bottom from the original superintendent's house to the west boundary and the historic trail to the cave. The historic district contains seven buildings or structures that contribute to the importance and character of the district. The additional structures are outside the district. All together the monument has 12 structures on the List of Classified Structures. Half the structures are in good condition. Annual inspections indicate that work on historic structures conducted over the past three years has succeeded in stabilizing and protecting the structures. Routine maintenance in 2003 was sufficient to achieve the annual goal.

Periodic investigation of resource condition, and verification and updating of historic structures records provides the National Park Service better ability to protect the historic structures. At Timpanogos Cave National Monument, the condition of historic structures is checked each year by maintenance staff responsible for maintaining the structures. The condition of structures is reported to resource management staff responsible for recording changes. In 2003, maintenance personnel checked the condition of historic structures and found no deterioration from the previous year.

Care and protection of museum collections has been difficult since the monument lost the visitor center and administrative offices to fire in 1991. Adequate facilities to fully protect the collections have not been available and the approximately 6,400 museum objects have been kept in a room that does not have climate control meeting professional storage standards. However, many of the protection standards are being met.

Three new standards were met in 2003. The most important of these being a Housekeeping Plan was completed. This plan provides guidelines on care of the museum storage area, and outlines a cleaning and maintenance schedule that will improve the preservation of museum objects. Work completed in 2003 included:

- Museum Housekeeping Plan Completed
- Improved museum storage boxes were purchased
- A cold storage refridgerator was purchased for museum photo's and negatives
- Environmental and luminance monitoring was recorded and analyzed on a new datalogger
- Museum laptop computer was upgraded to Windows XP
- An Integrated Pest Management Plan was drafted which outlines a course of actions taken against museum pests.

Cataloging in the Automated National Catalog System (ANCS+) continued. In 2003, the staff cataloged 105 objects. That is a 5% increase above the 100 targeted objects annually. A total of 4,594 objects have been cataloged of the 5-year goal of 4,700 objects. Discussions continued with Regional Curators, to assist the monument in writing a Museum Management. Other work completed in 2002 included:

- Museum items were moved to new museum cabinets.
- A photolight table was used to photo archive museum items.
- Historic photos continue to be digitized

October 14, 2003 was the 81st anniversary of the establishment of Timpanogos Cave National Monument. The monument has never compiled a comprehensive administrative history. Copies of documents representing the course of monument development have been combined into an informal look at the monument's history, but an administrative history consistent with NPS standards has not been conducted. In 2002, funding was secured and in 2003 the research and writing was begun on the first administrative History of Timpanogos Cave National Monument.

Maintenance

The maintenance division has the most fulltime employees in the monument. A fulltime Facility Manager (Chief of Maintenance) and two fulltime maintenance workers plus a fulltime term position make up the division. Five seasonal employees rounded out the division for the summer one less than the previous year. The notable success of the monument's maintenance program from 1998 through 2003 was due in great part to Recreation Fee Demonstration revenue. This revenue has provided for seasonal workers, materials and equipment necessary to rebuild and maintain monument facilities. The declining monument budget necessitated a reduction in seasonal work force. However, the many comments received, both written and verbal, about how well cared for the monument is, how nice everything is looking, and how the fees are really being used to make things better demonstrates the success of maintenance and other divisions that work very hard to care for the monument and the visitors.

Visitor safety is of paramount importance. To protect visitors from falling rock while on the trail to the cave - a very serious hazard - loose and fractured rocks above the trail were barred free before opening for the season. This was several weeks of hard work for the crew. The rock hazard trap above the trail requires annual clean out and maintenance. This work is in a very difficult location and requires technical safety equipment.

The serious hazard of rock fall at the cave entrance, the primary gathering point for cave tours was addressed in 2003 with the construction of an entrance shelter. The 20 by 40 foot open structure of large rough-cut beams and stone support columns is the most significant construction in the monument in over 20 years. The shelter is in keeping with the historic character of the monument and blends very well with the surrounding cliffs. Benches were installed under the shelter creating a very safe, comfortable and aesthetic rest area for visitors to sit and enjoy the canyon view and talk other people while they wait for their tour to begin. The shelter has very high structural strength to withstand rockfall and snow load. It protects visitors from rockfall, rain and the harsh summer sun. In its first season the shelter already became a focal point of visitors who use it to know where they are on the trail and as a desirable destination. The completed shelter is of very high quality work and will become a significant historic feature of the monument.

Construction of the shelter was contracted to McCullough Engineering of Salt Lake City. This company also constructed the cave exit shelter and the rock trap above the cave restroom more than 20 years ago. Timpanogos Cave's Facility Manager functioned as the COR for the project. The project location in a narrow canyon and over 1,000 feet above the canyon floor among spires of limestone presented unusual construction challenges. The only surface access being the narrow, steep and winding cave trail required most of the construction materials to be slung in by helicopter. Although construction required that the cave trail, and therefore cave tours be closed at times, the work was conducted with minimum inconvenience to visitors.

As part of the construction contract, McCullough also rehabilitated and upgraded the Ranger Room at the cave entrance to provide much needed improvements to employee working conditions. A storage room was built at the cave exit shelter to safely store maintenance and resource management equipment that had all too frequently cluttered public areas. The structure for a cave exit restroom was also constructed. The facility manager was also the COR on these projects. All projects were done exceptionally well and are wonderful improvements to monument facilities. 2003 was truly an exceptional year for facility improvements at Timpanogos Cave National Monument.

Considerable time was spent on monument signs. Signs are maintained routinely and are critical to directing and informing visitors. Some signs are also part of the historic fabric of the monument. New signs were designed for the cave trail to help visitors understand the need for purchasing tour tickets and to warn of the dangers of rattlesnakes and cliff areas. The maintenance division also installed the new cave trail wayside exhibits.

The maintenance division provides considerable direct support to other operations. Resource management was supported with disturbed land replanting, and cave protection projects. A maintenance person was assigned the primary duty of maintaining the cave trail and associated facilities, including cleaning restrooms, trash removal, cave lighting, and the cave trail. The cross-divisional support with Interpretation and Resource Management in maintaining the cave trail and cave lighting system has been excellent. Because of the difficulty of access, no one division can accomplish this alone. The cross-divisional cooperation has clearly resulted in better visitor service and safety.

The monument is fortunate to have, for a second time, two maintenance employees accepted into the PAST program through the Historic Preservation Office. Rock mason Donald Robinson is a mentor in the program for historic rock masonry restoration. Maintenance worker Kristy Ferguson is in the program as an historic carpentry trainee. This two-year program will be concluded in the spring of 2004. The skills this program brings to Timpanogos Cave and other parks where projects are done are of exceptional value.

General maintenance work is ongoing and never-ending. General maintenance included maintaining the potable water delivery system, maintaining the wastewater system, repairs to frozen water and sewer lines, snow removal, hazardous tree removal, breaking up and removing large boulders in the picnic area and on the cave trail, asphalt patching, repairing and painting park residences and other facilities, grounds keeping, custodial services, and unlimited smaller but constant jobs. The double wide modular unit that was installed in 1992 as a temporary visitor center requires continual attention and upkeep. The building was not designed for more than a decade of over 100,000 people a year going in and out.

Some specific maintenance projects and accomplishments in 2003 include:

- Daily custodial maintenance was conducted in all public use areas and facilities. During high use periods and holidays, additional staff was assigned and public areas cleaned more frequently.
- Maintenance crews made special efforts to keep roadsides trash free in the monument and between the monument and the entrance station to American Fork Canyon.
- Maintenance work was continued on the cave trail.
- Significant maintenance and upgrades were made to the cave electrical system to assure safe and dependable function.
- Paths throughout the picnic areas were cleaned and maintained on a regular basis.
- Snow removal was routinely conducted in all public areas throughout the winter to assure access for winter recreation.
- The potable water system was maintained and met all health standards, and responsible personnel received required annual training in system maintenance.
- Several potable waterlines were dug up and repaired.
- The waste water line at the historic rock house was repaired and a cleanout valve added.
- Quarters #9 had considerable interior work done including new sheetrock in the living room and bedroom ceilings.
- Both quarters were re-roofed.
- The new Facility Management System Software program was installed, the facility manager trained in its use, and the system was fully implemented.